

BEFORE THE  
PUBLIC SERVICE COMMISSION  
OF SOUTH CAROLINA

In the Matter of

## COVER SHEET

Application of Duke Energy Carolinas, LLC for  
Approval of Decision to Incur  
Nuclear Generation Pre-Construction Costs

DOCKET  
NUMBER: 2007-440-E

(Please type or print)

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**DOCKETING INFORMATION** (Check all that apply)

☐ Emergency Relief demanded in petition ☐ Request for item to be placed on Commission's Agenda expeditiously

☒ Other: Direct Testimony of Ellen Ruff

INDUSTRY (Check one)	NATURE OF ACTION (Check all that apply)			
<input checked="" type="checkbox"/> Electric	<input type="checkbox"/> Affidavit	<input type="checkbox"/> Letter	<input type="checkbox"/> Request	
<input type="checkbox"/> Electric/Gas	<input type="checkbox"/> Agreement	<input type="checkbox"/> Memorandum	<input type="checkbox"/> Request for Certificatio	
<input type="checkbox"/> Electric/Telecommunications	<input type="checkbox"/> Answer	<input type="checkbox"/> Motion	<input type="checkbox"/> Request for Investigator	
<input type="checkbox"/> Electric/Water	<input type="checkbox"/> Appellate Review	<input type="checkbox"/> Objection	<input type="checkbox"/> Resale Agreement	
<input type="checkbox"/> Electric/Water/Telecom.	<input type="checkbox"/> Application	<input type="checkbox"/> Petition	<input type="checkbox"/> Resale Amendment	
<input type="checkbox"/> Electric/Water/Sewer	<input type="checkbox"/> Brief	<input type="checkbox"/> Petition for Reconsideration	<input type="checkbox"/> Reservation Letter	
<input type="checkbox"/> Gas	<input type="checkbox"/> Certificate	<input type="checkbox"/> Petition for Rulemaking	<input type="checkbox"/> Response	
<input type="checkbox"/> Railroad	<input type="checkbox"/> Comments	<input type="checkbox"/> Petition for Rule to Show Cause	<input type="checkbox"/> Response to Discovery	
<input type="checkbox"/> Sewer	<input type="checkbox"/> Complaint	<input type="checkbox"/> Petition to Intervene	<input type="checkbox"/> Return to Petition	
<input type="checkbox"/> Telecommunications	<input type="checkbox"/> Consent Order	<input type="checkbox"/> Petition to Intervene Out of Time	<input type="checkbox"/> Stipulation	
<input type="checkbox"/> Transportation	<input type="checkbox"/> Discovery	<input type="checkbox"/> Prefiled Testimony	<input type="checkbox"/> Subpoena	
<input type="checkbox"/> Water	<input type="checkbox"/> Exhibit	<input type="checkbox"/> Promotion	<input type="checkbox"/> Tariff	
<input type="checkbox"/> Water/Sewer	<input type="checkbox"/> Expedited Consideration	<input type="checkbox"/> Proposed Order	<input checked="" type="checkbox"/> Other:	
<input type="checkbox"/> Administrative Matter	<input type="checkbox"/> Interconnection Agreement	<input type="checkbox"/> Protest		
<input type="checkbox"/> Other:	<input type="checkbox"/> Interconnection Amendment	<input type="checkbox"/> Publisher's Affidavit		
	<input type="checkbox"/> Late-Filed Exhibit	<input type="checkbox"/> Report		

BEFORE  
THE PUBLIC SERVICE COMMISSION OF  
SOUTH CAROLINA

DOCKET NO. 2007-440-E

Application of Duke Energy Carolinas, LLC for	)	DIRECT TESTIMONY OF
Approval of Decision to Incur	)	ELLEN T. RUFF FOR
Nuclear Generation Pre-Construction Costs	)	DUKE ENERGY CAROLINAS

DIRECT TESTIMONY OF  
ELLEN T. RUFF FOR  
DUKE ENERGY CAROLINAS

1   **Q.   PLEASE STATE YOUR NAME, ADDRESS, AND POSITION WITH**  
2       **DUKE ENERGY CAROLINAS.**

3   A.   My name is Ellen T. Ruff, and my business address is 526 South Church Street,  
4       Charlotte, North Carolina. I am President of Duke Energy Carolinas, LLC  
5       (hereinafter, "Duke Energy Carolinas" or the "Company") and have overall  
6       accountability for Duke Energy Carolinas' financial results, operational  
7       performance, and customer service.

8   **Q.   PLEASE STATE BRIEFLY YOUR EDUCATION, BACKGROUND, AND**  
9       **PROFESSIONAL AFFILIATIONS.**

10  A.   I am a graduate of Simmons College with a Bachelor of Arts in Business. I also  
11       have a Juris Doctor degree from the University of North Carolina at Chapel Hill.  
12       I also completed the Harvard Business School's Advanced Management Program.  
13       I am a member of the North Carolina State Bar, and the Mecklenburg County and  
14       American Bar Associations. I also serve on the Executive Committee of the  
15       North Carolina Citizens for Business and Industry board of directors.

16  **Q.   PLEASE DESCRIBE YOUR BUSINESS BACKGROUND AND**  
17       **EXPERIENCE.**

18  A.   I joined Duke Power Company (now known as Duke Energy Carolinas) in 1978  
19       as an attorney in the Legal Department. I was named Vice President and General  
20       Counsel of Electric Operations following the creation of Duke Energy  
21       Corporation ("Duke Energy") in 1997. I was named Vice President and General  
22       Counsel of Corporate, Gas and Electric Operations in January 1999 and Senior  
23       Vice President and General Counsel of Duke Energy Corporation in February

1       2001. I was appointed Senior Vice President of Asset Management for Duke  
2       Power in August 2001. I became Senior Vice President of Power Policy and  
3       Planning in February 2003 and Group Vice President of Power Policy and  
4       Planning in March 2004. I became Group Vice President of Planning and  
5       External Relations for Duke Power in March 2005. I assumed my current  
6       position in April 2006.

7       **Q.   WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

8       A.   Duke Energy Carolinas has applied to the Commission for approval of its decision  
9       to incur pre-construction costs of up to \$230 million through December 31, 2009  
10      for the Company's proposed William States Lee, III Nuclear Station to be located  
11      in Cherokee County, South Carolina ("Lee Nuclear Station"). The South Carolina  
12      allocable portion of these total development costs would be approximately 28%.  
13      The purpose of my testimony is to discuss the importance of the requested  
14      approval to Duke Energy Carolinas, and how the Company's proposed Lee  
15      Nuclear Station fits into our strategic plans to meet customers' needs for reliable,  
16      cost-effective electricity while modernizing our fleet, increasing diversity among  
17      our generation resources, reducing our environmental footprint, and increasing  
18      our energy efficiency and conservation programs and promotion of renewable  
19      resources.

20               In addition to my testimony, Dhiaa Jamil, Group Executive and Chief  
21      Nuclear Officer for Duke Energy Carolinas, testifies to the details of the  
22      development work and estimated costs for the Lee Nuclear Station; and Janice  
23      Hager, Managing Director, Integrated Resource Planning and Environmental

1 Strategy for Duke Energy, testifies regarding the integrated resource planning  
2 analysis that supports the development of the Lee Nuclear Station.

3 **Q. WHY IS DUKE ENERGY CAROLINAS DEVELOPING THE LEE**  
4 **NUCLEAR STATION?**

5 A. Duke Energy Carolinas has an obligation to plan for and meet our customers'  
6 energy needs, and we must do so reliably and cost-effectively in the face of an  
7 uncertain future. Because the Lee Nuclear Station has significant value to our  
8 customers in the face of the uncertainties posed by future economic,  
9 environmental, regulatory, and operating circumstances, it is prudent for us to  
10 take the necessary development activities to preserve the Lee Nuclear Station as a  
11 resource option. The Company's need for new base load generation resources  
12 over the next decade, combined with the need for greater fuel diversity and a  
13 commitment to reducing Duke Energy Carolinas' carbon footprint, make the  
14 continued evaluation and development of new nuclear generation an essential part  
15 of prudent future resource planning.

16 **Q. HOW DOES THE DEVELOPMENT OF THE LEE NUCLEAR STATION**  
17 **FIT WITH DUKE ENERGY CAROLINAS' STRATEGIC PLANS TO**  
18 **MEET CUSTOMER NEEDS?**

19 A. Duke Energy Carolinas has developed a strategic plan to meet sustained customer  
20 load growth while maintaining prudent flexibility to respond to dynamic  
21 regulatory, environmental and operating circumstances. The Lee Nuclear Station  
22 is a key component of Duke Energy Carolinas' comprehensive modernization  
23 plan, which also includes increased energy efficiency and demand-response

1 programs, renewable energy resources, new natural gas resources, and the new  
2 advanced clean coal Cliffside Unit 6. In each of the past five years, Duke Energy  
3 Carolinas has added approximately 50,000 new customer accounts. Each account  
4 typically represents an even greater number of actual users of electricity at each  
5 location. As Company witness Janice Hager discusses in her testimony, the  
6 recently-filed 2007 Annual Plan demonstrates that Duke Energy Carolinas has a  
7 cumulative need for approximately 7,000 MW of new generation capacity by  
8 2018, which grows to approximately 11,000 MW by 2027.

9 In addition to meeting our customers' growing energy needs, the  
10 Company must also consider a changing regulatory landscape. Duke Energy  
11 Carolinas is committed to reducing its environmental footprint. As part of the  
12 Company's commitments in the Cliffside advanced clean coal Certificate of  
13 Public Convenience and Necessity ("CPCN") proceeding, North Carolina Utilities  
14 Commission ("NCUC") Docket No. E-7, Sub 790 and associated air permit issued  
15 by the North Carolina Department of Environment and Natural Resources, we  
16 will retire approximately 1,000 MW of older, less-efficient coal units by  
17 December 31, 2018. Importantly, of the base load resource options available,  
18 nuclear generation is the only viable resource with no carbon dioxide (CO<sub>2</sub>) or  
19 other greenhouse gas emissions. As a result of the potential for future regulatory  
20 carbon constraints, the continued development of the Lee Nuclear Station is even  
21 more prudent.

1   **Q.   WHY IS DUKE ENERGY CAROLINAS SEEKING APPROVAL OF ITS**  
2       **DECISION TO INCUR DEVELOPMENT COSTS THROUGH**  
3       **DECEMBER 31, 2009?**

4   A.   Duke Energy Carolinas incurred total system-wide development costs of \$69.6  
5       million, including \$8.3 million in accruals, through December 31, 2007.  
6       However, nuclear generation facilities have a very long lead time and much work  
7       remains that will require the continued expenditure of significant funds during the  
8       development phases. In his testimony, Company witness Dhiaa Jamil details the  
9       development work already conducted, as well as the anticipated development  
10      work needed and costs to be incurred during calendar years 2008 and 2009 to  
11      preserve nuclear generation as an available resource option to serve customers'  
12      needs in the 2018 timeframe.

13           The General Assembly of South Carolina expressed its support for new  
14      nuclear generation in the June 1, 2006, Joint Resolution, "A Concurrent  
15      Resolution to Advance the Need for Electric Utilities to Build New Nuclear  
16      Power Plants in South Carolina and to Urge the Office of Regulatory Staff and the  
17      Public Service Commission to Encourage Such Consideration," H. 5236. In  
18      addition, in 2007, the legislatures in both South Carolina and North Carolina  
19      passed legislation that expressly provides for commission approval of a utility's  
20      decision to incur nuclear pre-construction costs, as well as provides for additional  
21      assurances and for recovery of nuclear financing costs during construction. We  
22      believe that the assurances sought by this application are consistent with the new  
23      law.

1           The Lee Nuclear Station is the largest single capital project in the history  
2 of Duke Energy Carolinas. Duke Energy Corporation plans to spend \$23 billion  
3 in total on capital projects over the next five years to ensure continued reliable  
4 and cost-effective service for its customers. Accordingly, the assurance sought by  
5 this Application is critical to the Company's financial well-being and to the ability  
6 of Duke Energy Carolinas' customers to continue to count as an option this more  
7 diverse, greenhouse gas emission-free, generation source.

8 **Q. HAS THE FINAL DECISION BEEN MADE TO CONSTRUCT THE LEE**  
9 **NUCLEAR STATION?**

10 A. No. Duke Energy Carolinas will retain substantial flexibility to adjust the  
11 development and construction plans in light of additional information to be gained  
12 in future years. The Company's annual integrated resource planning filing and  
13 subsequent filings related to the Lee Nuclear Station will enable the Commission  
14 to review and evaluate future decisions to ensure that the final result is prudent  
15 and in customers' long-term best interests. However, given what we know now,  
16 continuing to develop the Lee Nuclear Station to have the option of bringing it  
17 online in the 2018 timeframe is in our customers' interests.

18 **Q. WHAT IS THE STATUS OF OTHER RELATED REGULATORY**  
19 **APPROVALS FOR THE LEE NUCLEAR STATION?**

20 A. The regulatory approval process for the Lee Nuclear Station is lengthy and  
21 complex. We have taken the first steps toward these regulatory approvals. Duke  
22 Energy Carolinas filed a Combined Construction and Operating License  
23 Application with the Nuclear Regulatory Commission on December 13, 2007, for



1 the Lee Nuclear Station. We also filed an application for approval of the decision  
2 to incur pre-construction nuclear generation development expenses for the Lee  
3 Nuclear Station with the North Carolina Utilities Commission on December 7,  
4 2007. We have not yet filed an application for a CPCN with the Commission, and  
5 currently do not anticipate making such a filing until the second quarter of 2008 at  
6 the earliest.

7 **Q. WHAT IS THE STATUS OF ANY OPPORTUNITIES FOR JOINT**  
8 **OWNERSHIP OF THE LEE NUCLEAR STATION?**

9 A. The Southern Company elected to withdraw from the prior joint development  
10 agreement related to the Lee Nuclear Station and Duke Energy Carolinas is  
11 independently developing the Lee Nuclear Station. As with any resource  
12 addition, however, the Company will continue to assess opportunities for joint  
13 ownership or financial arrangements that could be beneficial for our customers.  
14 Duke Energy Carolinas will update the Commission should there be any  
15 developments regarding joint ownership decisions for the Lee Nuclear Station.

16 **Q. WHY DOES DUKE ENERGY CAROLINAS BELIEVE THAT THE**  
17 **COMMISSION SHOULD GRANT ITS APPLICATION?**

18 A. For all the reasons discussed in my testimony and those of Duke Energy  
19 Carolinas' other witnesses, the continued development of the Lee Nuclear Station  
20 is valuable and important for our customers. We believe that the decision to incur  
21 total pre-construction costs of up to \$230 million through December 31, 2009 is  
22 prudent and reasonable. The approval sought by this application will provide

1           needed additional assurance that the Lee Nuclear Station will continue to be an  
2           option to serve Duke Energy Carolinas' customers in the 2018 timeframe.

3    **Q.    DOES THIS COMPLETE YOUR PRE-FILED DIRECT TESTIMONY?**

4    **A.    Yes, it does.**